在人类的围棋比赛中，如果甲可以稳定地让两子击败乙，乙又可以稳定地让两子击败丙，那么甲和丙不用比赛也可以知道甲胜过丙。但跟 AlphaGo 的比赛，不可以沿用这种思路。因为 AlphaGo 不具有人类的智力，却有电脑的弱点。而所有和 AlphaGo 比赛过的人类棋手并不真正知道电脑和人工智能的局限性，包括 reinforcement 和 deep-learning 的局限性。

AlphaGo 其实只是利用自我对弈使对局数量远超过人类，较好地积累了类似于直觉(intuition)的对局经验，并不懂理论分析。但人类可以通过理论分析，来找出 reinforcement 和 deep-learning 中的问题。这就使人类仍有胜过 AlphaGo 的可能，需要实验来验证。

理论分析是科学的重要方法。光凭直觉是无法发展出科学的。实验更是重要，伽理略的 Dialogue Concerning the Two Chief Word Systems，讲的就是科学和亚里斯多德思维不同，科学需要实验。

其实早在 Deepmind 成立之前，本人就认为电脑围棋以后可以战胜人类，因为围棋是在很小的可控制空间中的规则化游戏。但这也使 AlphaGo Zero 自我学习能力的价值很有限。而且可以战胜人类，也并不等于 superman。人类也有自己的优势。

~~~~~~~~~~~~~~~~~~~~

https://groups.yahoo.com/neo/groups/SJTU-SV/conversations/messages/11564

Sent: Wednesday, October 18, 2017 11:22 PM

To: davidsilver@google.com; demishassabis@google.com

Cc: gulifan06@yahoo.com; SJTU-SV@yahoogroups.com

Subject: [SJTU-SV] Concerning the AlphaGo Zero Paper on Nature Magazine

Dr. Hassabis and Dr. Silver,

I saw the AlphaGo Zero paper for Nature, which claims "AlphaGo Zero achieved superhuman performance". Unfortunately, this has not been proved. Please let Nature magazine know that they published a paper without proving it first.

Defeating other versions of AlphaGo does not mean AlphaGo Zero achieved superhuman performance, because all versions of AlphaGo could share the same weakness of AI.

The earlier versions of AlphaGo have not been proved by scientific experiments yet. The earlier games with humans are just empirical tests, not scientific experiments.

Scientific experiments should been done with strictly controlled conditions. If you agree to do scientific experiments with AlphaGo, I could publish my conditions and procedures.

Also, using the algorithms similar to AlphaGo to solve other problems, does not mean AlphaGo has general-purposed intelligence. Some computer systems before AlphaGo already could solve several kinds of problems. "General purpose" in AI has
~~~~~~~~~~~~~~~~~~~~

a quite different meaning.

I CCed this email to SJTU-SV list, because scientific research is a public issue.

I got your email addresses from the public site: https://gogameguru.com/i/2016/03/deepmind-mastering-go.pdf.

Please also let Aja Huang know these, because he is a main contributor. Anyway, congratulation to AlphaGo team for your previous achievements !

Best Regards,

Lifan Gu